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Protozoa and also contain data of general interest, the latter for example would have provided some connecting links between the Mastigophora and Ciliat for the discussion of the inter-relationships of these groups. This book should help materially in stimulating and fostering the study of this most interesting group by American students by whom it has been much neglected during the past decade.

BOTANY.

Notes.—The *Proceedings* of the Pittsburgh meeting of the *Society for the Promotion of Agricultural Science* include the following botanical papers:—Bessey, Notes on the poisonous plants of Nebraska; Voorhees and Lipmans, Individuality of plants an important factor in plant nutrition studies; Arthur, The *Æcidium* as a device to restore vigor to the fungus; Lyon, The importance of considering previous environment in conducting variety tests; Bolley, Preliminary efforts to develop a continuous process of seed disinfection by means of formaldehyde vapor; Bolley, Use of the centrifuge in diagnosing plant diseases; Beal, Observations by the roadside; Rane, Plant depredations and plant culture; Weems and Hess, Study of the food value of some of the edible fungi of Ames [Ia.]; Chester, Bacteriological analysis of soils; and Lazenby, Some notes on the water content of certain plants.

The *Botanical Gazette* for December contains the following articles:—Frye, A morphological study of certain Asclepiadaceæ; Leavitt, The root-hairs, cap, and sheath of *Azolla*; Stevens, Studies in the fertilization of *Phycomycetes*; Berry, Notes on *Sassafras*; Fairchild, A date-leaf boat of Arabia; and Cockerell, A variable larkspur.

The *Bulletin of the Torrey Botanical Club*, for December, contains the following articles:—Cannon, A cytological basis for the Mendelian laws; Vail, Notes on the genus *Rouliniella*; Underwood, Review of the genus *Danæa*; Rydberg, Studies on the Rocky Mountain Flora, IX; Rusby, Enumeration of the plants collected by Dr. H. H. Rusby in South America, 1885–6, XXXII; and Knowlton, Report on a small collection of fossil plants from the vicinity of Porcupine Butte, Montana.

The *Ohio Naturalist* for December contains the following botanical articles:—Schaffner, Observations on self-pruning and the formation of cleavage plains; Schaffner, The flora of Little Chicken Island; Burr, Compass plants of Ohio; and Simkins, Record of observations on the dandelion.

The *Plant World* for November contains the following articles:—Longenecker, Mushrooms; Niles, Origin of plant names; King, a summer outing in Iowa; Harvey, The dwarf Mistletoe at Mount Ktaadn; Pammel, An old sphagnum bog in La Crosse county, Wisconsin; and, in the supplement, pages 247–253 of Mr. Pollard's The families of flowering plants.

The *Plant World* for January contains the following articles:—Waters, "Obtusilobata" forms of some ferns; Messenger, The preservation of our native plants; Collins, Dimorphism in the shoots of the Ginkgo.

Rhodora for December contains the following articles:—Fernald, Variations of American Cranberries; Andrews, Bryophytes of the Mt. Greylock region, II; Deane, Remarkable persistence of the button-bush; Floyd, Cristate form of *Nephrodium marginale*; Cheney, Rare plants in Centreville, Mass.; Jewell, Some ferns of Franklin County, Me.; Gutterson, *Cuphea procumbens* at Andover, Mass.; Clark, *Erodium meschatum* in Connecticut; Mann, An American occurrence of *Centaurea diffusa*; Pease, Two new stations for *Arceuthobium*; and Bissell, Some species of *Crepis* and *Leontodon*.

Torrey for December contains the following articles:—Lloyd, Vacation observations, II; Earle, Key to the North American species of *Cortinarius*, II; and White, Petiolate connation in *Trifolium pratense*.

The 9th volume of the *Proceedings of the Iowa Academy of Sciences* contains the following articles of botanical interest:—Shimek, Forestry in Iowa; Pammel and King, Vascular cryptogams of Iowa and adjoining parts of southeastern Minnesota and western Wisconsin; Pammel, Preliminary notes on the flora of western Iowa, especially from the physiographical ecological standpoint; Hitchcock, A list of plants collected in Lee County, Florida; and, Hume, Ustulagineæ of Iowa.

Like earlier parts, no. 106 of the *Proceedings of the Linnean Society of New South Wales* contains a number of botanical articles.

Papers on *Chantransia efflorescens*—by Lehmann, derithrifying bacteria—by Baur, and the structure of *Beggiatoa mirabilis*—by Hinze, are contained in the Kiel Abtheilung of n. F. VI, of the “Wissenschaftliche Meeresuntersuchungen” of the *Kommission zur wissenschaftlichen Untersuchungen der deutschen Meere*.

The concluding part (no. 3–6) of Vol. XVI of the *Annales des Sciences Naturelles, Botanique*, issued in December, consists of an extended discussion of the Ochnaceæ, by Van Tieghem.

A paper on Drosera, by Heinricher, is contained in the *Zeitschrift des Ferdinandeums für Tirol und Vorarlberg*, far 1902.

A note on Melocactus seedlings, by Suringar, is contained in the *Berichte der Deutschen Botanischen Gesellschaft* of December 23.

An account of the “ayotli,” or native gourds, of Mexico, by Urbina, is in course of publication in the *Anales del Museo Nacional de México*; beginning with the issue of December.

A habit-photogram of a fine American Elm is contained in *Country Life in America* for January.

A largely illustrated paper on the morphology and ecology of the Indian Podo-stemaceæ, by Dr. Willis, director of the garden, constitutes part 4 of Vol. I of the *Annals of the Royal Botanic Gardens, Peradeniya*.

An interesting account of the tuberiferous *Coleus coppini*, by Heckel, is contained in fascicle 2 of the *Annales de l'Institut Colonial de Marseille*, Vol. VIII.

An illustrated account of *Carludovica jamaicensis*, by Fawcett and Harris, is published in the October number of the *Bulletin of the Botanical Department, Jamaica*.

Notices of the Elephant's trunk Banana, *Musa wilsoni*, with illustrations, appear in the *Gardener's Chronicle* for December 20 and 27.

Brodiea bicolor is described by Suksdorf in *The West American Scientist* for December.

School Science for January contains an article on The cocoanut—its composition and germination, by Kirkwood.

A phylogenetic study of Ginkgo, Cephalotaxus, and the Taxaceæ, by von Spiess, is appearing in current numbers of the *Österreichische Botanische Zeitschrift*.

A considerable number of illustrations of *Platyterium* occur in *The Gardeners' Chronicle* of January 10.

The principal articles in the January number of *The Bryologist* are: — E. G. Britton, *Sematophyllum recurvans*; Grout, *Orthotrichum*; and Holzing, Karl Gustav Limpricht.

An important cytological paper on the Basidiomycetes by Maire, is published as a supplement to the *Bulletin de la Société Mycologique de France*, of December 31, which also contains a paper by Guéguen on teratological specimens in the same group.

Spegazzini publishes a second series of "*Mycetes argentinensis*" in the opening fascicle of Vol. VIII, ser. 3, of the *Anales del Museo Nacional de Buenos Aires*.

Mr. Massee notes the introduction of *Cintractia patagonica* into England, in *The Gardeners' Chronicle* for January 3.

A study of yeast cells and their nuclear difference from unicellular animal organisms, by Feinberg, is contained in the *Bericht der Deutschen Botanischen Gesellschaft* issued on December 23d.

Traverso publishes a note on the *Sclerospora* of grasses, in fascicle 5-7 of *Malpighia* for 1902.

Fascicle 2 of the supplement to the *Index Kewensis*, has appeared and covers the phanerogamic genera *Cymbidium* to *Iriha*.

As one of the "Twentieth Century Text Books" issued by the Appletons, an "Analytical key to some of the common flowering plants of the Rocky Mountain Region," by Professor Aven Nelson, was published in June last.

The laws of plant distribution in the alpine zone are discussed by Jaccard in No. 144 of the *Bulletin de la Société Vandoise des Sciences Naturelles*.

Several papers on antarctic plants are contained in the concluding number of *Nyt Magazin for Naturvidens Kaberne*, for 1902.

The double Lieferung 22-3 of Ascherson and Gräbner's "Synopsis der Mitteleurpäischen Flora" completes the grasses and enters on Cyperaceæ.

A sand-hill flora study in Lancashire, by Bailey, is contained in the *Memoirs and Proceedings* of the Manchester Literary and Philosophical Society, issued December 15.

Reiche's "Flora de Chile," published at Santiago, has reached the third volume, devoted to Cunoniaceæ to Compositæ-in-part.

"Flora of New Providence and Andros (Bahama Islands)" is the title of a paper by Mrs. A. R. Northrop, which forms the opening number of Vol. XII of the *Memoirs of the Torrey Botanical Club*, issued December 10th.

In a thesis on "Die Stelär-Theorie," published at Groningen in 1902, Schonte reaches the conclusion that but a single stelar type "Monostelie" occurs in the stem and root of vascular plants.

A study of style and stigma in the Cruciferae, by Villani, is contained in *Malpighia*, Vol. XVI fascicle 5-7.

Recent numbers of the *Bulletin du Muséum d'Histoire Naturelle*, of Paris, contain a considerable number of morphologico-systematic papers by Van Tieghem.

Plant physiology in the high school is the subject of a paper by Professor Barnes in *School Science* for December.

The use of bacteria in studying photosynthesis is discussed by Beijerinck in Vol. IV of the Proceedings of the Section of Sciences of the *K. Akademie van Wetenschappen te Amsterdam*, in which Burck writes on the irritable stigmas of *Torenia* and *Mimulus*, and on means to prevent the germination of foreign pollen on the stigma.

Guignard contributes a paper on the double fertilization of Cruciferae to the *Journal de Botanique* for November, which also contains the results of an anatomical study of Menispermaceæ, by Maheu.

A paper on neo-Lamarchian views as to organic evolution, by von Wettstein, is separately issued from the 1902 *Verhandlungen der Gesellschaft deutscher Naturforscher und Ärzte*.

C. A. White contributes a discussion of the mutation theory of De Vries to the Smithsonian Report for 1901.

Mendel's law is discussed by Professor Spillman in the *Popular Science Monthly* for January.

Mendel's laws and their probable relations to intra-racial heredity are discussed by Yule in recent numbers of *The New Phytologist*.

An illustrated article on the Missouri Botanical Garden, by its Director, is published in the *Popular Science Monthly* for January.

A Plea for hardy plants, with suggestions for their effective arrangement, by J. Wilkinson Elliott, has been reprinted from the *Transactions of the Massachusetts Horticultural Society* for 1895, with additional plans and copious and exquisite illustrations by J. Horace McFarland and others, and issued from the press of Doubleday, Page & Co.

A delightfully entertaining little book on Children's Gardens, by the Honorable Mrs. Evelyn Cecil, better known under her maiden name of Alicia Amherst, has been published by the Macmillans.

A sketch of the life and labors of Sir William Hooker, with portrait, is begun by his son, Sir Joseph Hooker, in the *Annals of Botany* for December.

A portrait of Schumann forms the frontispiece to the December number of the *Monatsschrift für Kakteenkunde*.